

Appl. No. 10/064,521
Amdt. dated March 23, 2005
Reply to Office action of December 23, 2004

AMENDMENTS TO THE CLAIMS

- Claim 1 (currently amended): A writing power control method of a ~~compact~~ an optical disc drive for determining the writing power ~~used~~ utilized for writing data onto a
- 5 ~~compact~~ an optical disc;
- the writing power control method comprising:
- (a) constructing a polynomial function which represents a relationship between a writing power and a target read-back signal parameter;
- 10 (b) retrieving the target read-back signal parameter from the ~~compact~~ optical disc;
- (c) determining a first writing power corresponding to the target read-back signal parameter according to the polynomial function;
- 15 (d) ~~performing a writing test procedure using the first writing power to determine a real read-back signal parameter~~ selecting successive blocks from a test area of the optical disc, performing a writing test procedure on the successive blocks utilizing the first writing power then determining a real
- 20 read-back signal parameter according to an average result of read-back signal parameters obtained from a plurality of blocks of the successive blocks;
- (e) comparing the real read-back signal parameter with the target read-back signal parameter; and
- 25 (f) if a difference between the real read-back signal parameter and the target read-back signal parameter is less than a predetermined value, writing data in the ~~compact~~ optical disc using utilizing the first writing power.

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- 5 Claim 2 (original): The writing power control method of claim 1 wherein if the difference between the real read-back signal parameter and the target read-back signal parameter is greater than the predetermined value, step(e) further comprises shifting the polynomial function according to the real read-back signal parameter, determining a second writing power according to both the shifted polynomial function and the target read-back signal parameter, and performing the writing test procedure again until the difference between the real and target read-back signal parameters is less than the predetermined value.
- 10 Claim 3 (currently amended): The writing power control method of claim 1 wherein the compact optical disc comprises a power calibration area (PCA) for performing the writing test procedure to determine the writing power.

Claim 4 (canceled)

- 15 Claim 5 (original): The writing power control method of claim 3 wherein the power calibration area comprises a test area for performing the writing test procedure and a count area for recording an execution number of the writing test procedure, the test area comprises a plurality of blocks, each block is capable of performing the writing test procedure once, and the writing test procedure comprises:
- 20 selecting successive blocks from the test area;
performing the writing test procedure on the successive blocks using the first writing power; and
determining the real read-back signal parameter according to a
- 25 single result of a read-back signal parameter obtained from the middle block of the successive blocks.

Claim 6 (currently amended): The writing power control method of claim 1 wherein the compact optical disc drive is a CD-R drive, and the target read-back signal

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parameter is a β value of a read-back signal according to a specification of the CD-R drive.

5 Claim 7 (currently amended): The writing power control method of claim 1 wherein the ~~compact~~ optical disc drive is a CD-RW drive, and the target read-back signal parameter is a γ parameter of a read-back signal according to a specification of the CD-RW drive.

10 Claim 8 (currently amended): The writing power control method of claim 1 wherein the ~~compact~~ optical disc comprises a lead-in area, and the target read-back signal parameter is retrieved from data stored in the lead-in area.

15 Claim 9 (original): The writing power control method of claim 1 wherein the polynomial function is constructed from a polynomial curve fitting method.

20 Claim 10 (currently amended): A writing power control method of a ~~compact~~ an optical disc drive for determining the writing power used utilized for writing data onto a ~~compact~~ an optical disc;

the writing power control method comprising:

25 (a) constructing a polynomial function which represents a relationship between a writing power and a target read-back signal parameter;

(b) retrieving the target read-back signal parameter from the ~~compact~~ optical disc;

(c) determining a first writing power corresponding to the target read-back signal parameter according to the polynomial function;

(d) performing a writing test procedure ~~using~~ utilizing the first

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writing power to determine a real read-back signal parameter;
(e) comparing the real read-back signal parameter with the target
read-back signal parameter; and
(f) if a difference between the real read-back signal parameter and
5 the target read-back signal parameter is greater than the
predetermined value, shifting the polynomial function
according to the real read-back signal parameter, determining
a second writing power according to the shifted polynomial
function and the target read-back signal parameter, and
10 performing a writing test procedure again until the difference
between the real and target read-back signal parameters is less
than the predetermined value to determine the writing power
of the ~~compact~~ optical disc drive.

15 Claim 11 (currently amended): The writing power control method of claim 10 wherein if
the difference between the real read-back signal parameter and the target
read-back signal parameter is less than the predetermined value, step(e) further
comprises writing data in the ~~compact~~ optical disc using utilizing the first
writing power.

20 Claim 12 (currently amended): The writing power control method of claim 10 wherein the
~~compact~~ optical disc comprises a power calibration area (PCA) for
performing the writing test procedure to determine the writing power.

25 Claim 13 (original): The writing power control method of claim 12 wherein the power
calibration area comprises a test area for performing the writing test procedure
and a count area for recording an execution number of the writing test procedure,
the test area comprises a plurality of blocks, each block is capable of performing
the writing test procedure once, and the writing test procedure comprises:

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selecting successive blocks from the test area;
performing the writing test procedure on the successive blocks
using the first writing power; and
determining the real read-back signal parameter according to an average result
5 of read-back signal parameters obtained from a plurality of middle blocks
of the successive blocks.

Claim 14 (original): The writing power control method of claim 12 wherein the power
calibration area comprises a test area for performing the writing test procedure
10 and a count area for recording an execution number of the writing test procedure,
the test area comprises a plurality of blocks, each block is capable of performing
the writing test procedure once, and the writing test procedure comprises:
selecting successive blocks from the test area;
performing the writing test procedure on the successive blocks
15 using the first writing power; and
determining the real read-back signal parameter according to a single result of
a read-back signal parameter obtained from the middle block of the
successive blocks.

20 Claim 15 (currently amended): The writing power control method of claim 10 wherein the
~~compact~~ optical disc drive is a CD-R drive, and the target read-back signal
parameter is a β value of a read-back signal according to a specification of the
CD-R drive.

25 Claim 16 (currently amended): The writing power control method of claim 10 wherein the
~~compact~~ optical disc drive is a CD-RW drive, and the target read-back signal
parameter is a γ value of a read-back signal according to a specification of the
CD-RW drive.

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Claim 17 (currently amended): The writing power control method of claim 10 wherein the ~~compact~~ optical disc comprises a lead-in area, and the target read-back signal parameter is retrieved from data stored in the lead-in area.

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Claim 18 (original): The writing power control method of claim 10 wherein the polynomial function is constructed from a polynomial curve fitting method.

- Claim 19 (new): A writing power control method of an optical disc drive for determining
- 10 the writing power utilized for writing data onto an optical disc;
the writing power control method comprising:
- (a) selecting a polynomial function, from a database, which represents a relationship between a writing power and a target read-back signal parameter;
- 15 (b) retrieving the target read-back signal parameter from the optical disc;
- (c) determining a first writing power corresponding to the target read-back signal parameter according to the polynomial function;
- 20 (d) performing a writing test procedure using the first writing power to determine a real read-back signal parameter;
- (e) comparing the real read-back signal parameter with the target read-back signal parameter; and
- 25 (f) if a difference between the real read-back signal parameter and the target read-back signal parameter is less than a predetermined value, writing data in the optical disc using the first writing power.